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10/809,457	03/26/2004	Johann Arnold	Q79724	7652

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EXAMINER	
PATEL, CHANDRAHAS B	
ART UNIT	**PAPER NUMBER**
2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,457	ARNOLD ET AL.	
	Examiner	Art Unit	
	Chandrahas Patel	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 3/27/2009 have been fully considered but they are not persuasive. Applicant argues that amended features of the claims are not taught by the references. However, examiner disagrees. Amended features are discussed in the office action below.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (USPN 6,483,846) in view of Nakano (USPN 6,754,226).

Regarding claim 1, Huang teaches a method for transmitting real-time data packets in a cyclic communication system, wherein each of a plurality of transmission cycles has a first partial cycle for transmitting real-time communication and a second partial cycle for transmitting non-real-time communication **[Col. 2, lines 67 – Col. 1, lines 1-5]**, the method comprising: determining a cycle number of a particular transmission cycle **[Col. 5, lines 34-40, particular repetitive cycle is determined for transmission of data]**; and processing a transmission sequence of real-time data packets within the first partial cycle of the particular transmission cycle **[Col. 2, lines 67 – Col. 1, lines 1-5, real-time data is transmitted during first partial cycle]**.

However, Huang does not teach pre-planning the real-time communication before the communication starts; the transmission sequence is composed of one or

more partial sequences, the composition of which depends on the cycle number determined for the particular transmission cycle, wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle, and wherein the pre-planning comprises defining a duration of each of the plurality of transmission cycles

Nakano teaches pre-planning the real-time communication before the communication starts **[Col. 4, lines 5-26, pre-plans how the data should be packetized before the data is put on the communication bus and it is real time data since it is audio data for isochronous transfer]**; the transmission sequence is composed of one or more partial sequences, the composition of which depends on the cycle number determined for the particular transmission cycle **[Col. 4, lines 60-67 – Col. 5, lines 1-6, number of channels determine partial sequences which is predetermined as described in Col. 5, lines 31-39]**, wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle **[Col. 4, line 60 – Col. 5, line 6, depending on whether Iso packet is present or not the transmission sequence is determined]**, and wherein the pre-planning comprises defining a duration of each of the plurality of transmission cycles **[Col. 4, line 50 – Col. 5 line 6 & Fig. 4, duration of cycle is determined and isochronous packets are transmitted first in that duration]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have composition depend on particular transmission cycle so

that it could be determined which channels are usable to send data in each cycle **[Col. 5, lines 31-39]**.

Regarding claim 2, Huang teaches times for forwarding each of one or more real-time critical data packets are planned in advance **[Col. 2, lines 55-59]**.

Regarding claims 3, 7, 11, Huang teaches the transmission sequence is a receive sequence or a send sequence of a user of the communication system **[Col. 5, lines 46-48]**.

Regarding claims 4, 8, 12, Huang teaches a length of the first partial cycle is selected as a function of the transmission sequence **[Col. 5, lines 51-62]**.

Regarding claims 5, 9, 13, Nakano teaches the transmission sequence is generated from a dynamic transmission list comprising one or more partial sequences and one or more conditional control commands, wherein a corresponding condition for each of the conditional control commands is based on the cycle number of the particular transmission cycle **[Col. 4, lines 53-60]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a condition for each conditional control command based on particular cycle since number of channels available during each communication varies **[Col. 5, lines 31-40]**.

Regarding claim 6, Huang teaches a user of a cyclic communication system that is operable to transmit one or more transmission cycles each of which has a first partial cycle for real-time communication and a second partial cycle for non-real-time communication, wherein the real-time communication is planned in advance **[Col. 2,**

lines 67 – Col. 1, lines 1-5], the user comprising: means for determining a cycle number of a particular one of the transmission cycles **[Col. 5, lines 34-40, particular repetitive cycle is determined for transmission of data]**; and means for processing a transmission sequence within a first partial cycle of the particular transmission cycle **[Col. 2, lines 67 – Col. 1, lines 1-5, real-time data is transmitted during first partial cycle]**, and wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle **[Col. 4, line 60 – Col. 5, line 6, depending on whether Iso packet is present or not the transmission sequence is determined]**.

However, Huang does not teach pre-planning the communication before the communication starts; teach the transmission sequence is composed of one or more partial sequences, the composition of which depends on the cycle number determined for the particular transmission cycle, wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle, and wherein the pre-planning comprises defining a duration of each of the plurality of transmission cycles.

Nakano teaches pre-planning the communication before the communication starts **[Col. 4, lines 5-26, pre-plans how the data should be packetized before the data is put on the communication bus and it is real time data since it is audio data for isochronous transfer]**; the transmission sequence is composed of one or more partial sequences, the composition of which depends on the cycle number determined for the particular transmission cycle **[Col. 4, lines 60-67 – Col. 5, lines 1-6, number of**

channels determine partial sequences which is predetermined as described in Col. 5, lines 31-39], and wherein the pre-planning comprises defining a duration of each of the plurality of transmission cycles **[Col. 4, line 50 – Col. 5 line 6 & Fig. 4, duration of cycle is determined and isochronous packets are transmitted first in that duration]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have composition depend on particular transmission cycle so that it could be determined which channels are usable to send data in each cycle **[Col. 5, lines 31-39]**.

Regarding claim 10, Huang teaches a cyclic communication system with at least a first and a second user, wherein each of one or more transmission cycles has a first partial cycle for real-time communication and a second partial cycle for non-real-time communication, wherein the real-time communication is planned in advance **[Col. 2, lines 67 – Col. 1, lines 1-5]**, and the first and the second users comprise: means for determining a cycle number of a particular one of the transmission cycles **[Col. 5, lines 34-40, particular repetitive cycle is determined for transmission of data]**; and means for processing a transmission sequence within a first partial cycle of the particular transmission cycle **[Col. 2, lines 67 – Col. 1, lines 1-5, real-time data is transmitted during first partial cycle].**

However, Huang does not pre-planning the communication before the communication starts; teach the transmission sequence is composed of one or more partial sequences, the composition of which depends on the cycle number determined

for the particular transmission cycle, wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle, and wherein the pre-planning comprises defining a duration of each of the plurality of transmission cycles.

Nakano teaches pre-planning the communication before the communication starts **[Col. 4, lines 5-26, pre-plans how the data should be packetized before the data is put on the communication bus and it is real time data since it is audio data for isochronous transfer]**; the transmission sequence is composed of one or more partial sequences, the composition of which depends on the cycle number determined for the particular transmission cycle **[Col. 4, lines 60-67 – Col. 5, lines 1-6, number of channels determine partial sequences which is predetermined as described in Col. 5, lines 31-39]**, wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle **[Col. 4, line 60 – Col. 5, line 6, depending on whether Iso packet is present or not the transmission sequence is determined]**, and wherein the pre-planning comprises defining a duration of each of the plurality of transmission cycles **[Col. 4, line 50 – Col. 5 line 6 & Fig. 4, duration of cycle is determined and isochronous packets are transmitted first in that duration]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have composition depend on particular transmission cycle so that it could be determined which channels are usable to send data in each cycle **[Col. 5, lines 31-39]**.

Regarding claim 14, Huang teaches a communication system operable to isochronously transmit data between respective users during transmission cycles **[Fig. 1]**, the system comprising: a network operable to connect the users **[Fig. 1, 100]**; an application program corresponding to a first user **[Fig. 1, 140]**; a memory portion corresponding to the first user and operable to store user data to facilitate control of the first user, and output data to be transmitted over the network to a second user **[Fig. 2A, 162]**; a cycle counter corresponding to the first user and operable to count the transmission cycles corresponding to a communication between the first user and the second user **[Col. 5, lines 34-40]**; and a processing portion corresponding to the first user and operable to determine a number of a subsequent transmission cycle **[Col. 5, lines 34-40]**, wherein the output data is transmitted from the first user to the second user during the subsequent transmission cycle which is divided into a real-time partial cycle and a non-real-time partial cycle **[Col. 2, lines 67 – Col. 1, lines 1-5]**.

However, Huang does not teach output data depends on the cycle number; wherein a real-time communication is pre-planned before the communication starts, and wherein the pre-planning comprises defining duration of each of the plurality of transmission cycles.

Nakano teaches data output depends on the cycle number determined for the particular transmission cycle **[Col. 4, lines 60-67 – Col. 5, lines 1-6, number of channels determine partial sequences which is predetermined as described in Col. 5, lines 31-39]**, and wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle **[Col. 4, line 60 – Col. 5,**

line 6, depending on whether Iso packet is present or not the transmission sequence is determined]; a real-time communication is pre-planned before the communication starts **[Col. 4, lines 5-26, pre-plans how the data should be packetized before the data is put on the communication bus and it is real time data since it is audio data for isochronous transfer]**, and wherein the pre-planning comprises defining a duration of each of the plurality of transmission cycles **[Col. 4, line 50 – Col. 5 line 6 & Fig. 4, duration of cycle is determined and isochronous packets are transmitted first in that duration]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have data output depend on particular transmission cycle so that it could be determined which channels are usable to send data in each cycle **[Col. 5, lines 31-39]**.

Regarding claim 15, Huang teaches the real-time partial cycle comprises one or more micro cycles **[Col. 5, lines 34-40]**.

However, Huang does not teach a transmission sequence of the one or more micro cycles is dynamically programmed based on the cycle number determined by the processing portion.

Nakano teaches a transmission sequence of the one or more micro cycles is dynamically programmed based on the cycle number determined by the processing portion **[Col. 5, lines 31-39]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to dynamically program micro cycles since number of channels available in each channel varies **[Col. 5, lines 31-39]**.

Regarding claim 16, Huang teaches the transmission sequence is predefined prior to commencement of the communication between the first and second users **[Col. 2, lines 55-59]**.

Regarding claim 17, Huang teaches the network comprises a network based on at least one of Field Bus, Profibus, Ethernet, Industrial Ethernet, FireWire, PC-internal bus systems (PCIs) and Isochronous Real-time Ethernet **[Fig. 1, 100]**.

Regarding claim 20, Nakano teaches utilizing the cycle number to identify which ones of the partial sequences are to be transmitted in the particular cycle **[Col. 5, lines 31-39]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use cycle number to identify which ones of the partial sequences to transmit cycles since number of channels available in each channel varies **[Col. 5, lines 31-39]**.

4. Claims 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (USPN 6,483,846) in view of Nakano (USPN 6,754,226) as applied to claim 1 above, and further in view of Steger et al. (USPN 6,505,247).

Regarding claim 18, the references teach a method as discussed in rejection of claim 1.

However, the references do not teach only updated data of real-time data packets is transmitted.

Steger teaches only updated data of real-time data packets is transmitted **[Abstract]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to send only updated data packets to increase network efficiency **[Abstract]**.

Regarding claim 19, Steger teaches the real-time data packets comprise a peripheral image and wherein unmodified portions of the peripheral image are not transmitted in the real-time communication cycle **[Abstract, Col. 5, lines 11-21]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to only send modified portions of the image so that network efficiency can be increased by sending only modified data **[Abstract]**.

5. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (USPN 6,483,846) in view of Nakano (USPN 6,754,226) and Shioe et al. (USPN 5,390,132).

Regarding claim 21, Huang teaches a method for transmitting real-time data packets in a cyclic communication system, wherein each of a plurality of transmission cycles has a first partial cycle for transmitting real-time communication and a second partial cycle for transmitting non-real-time communication **[Col. 2, lines 67 – Col. 1, lines 1-5]**, the method comprising: planning the real-time communication **[Col. 5, lines**

34-40]; determining a cycle number of a particular transmission cycle **[Col. 5, lines 34-40, particular repetitive cycle is determined for transmission of data]**; and processing a transmission sequence of real-time data packets within the first partial cycle of the particular transmission cycle **[Col. 2, lines 67 – Col. 1, lines 1-5, real-time data is transmitted during first partial cycle]**.

However, Huang does not the transmission sequence is composed of one or more partial sequences, the composition of which depends on the cycle number determined for the particular transmission cycle, and wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle, wherein each partial cycle for transmitting real-time communication comprises micro cycles, and wherein only isochronous real-time communication is transmitted in the micro cycles.

Nakano teaches the transmission sequence is composed of one or more partial sequences, the composition of which depends on the cycle number determined for the particular transmission cycle **[Col. 4, lines 60-67 – Col. 5, lines 1-6, number of channels determine partial sequences which is predetermined as described in Col. 5, lines 31-39]**, wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle **[Col. 4, line 60 – Col. 5, line 6, depending on whether Iso packet is present or not the transmission sequence is determined]**, and wherein only isochronous real-time communication is transmitted in the micro cycles **[Col. 4, lines 62-65, Iso packet are transmitted in micro cycles also shown in Fig. 4]**. Shioe teaches each partial cycle for transmitting

real-time communication comprises micro cycles **[Col. 16, lines 63-67, communication is carried out in micro cycles]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have composition depend on particular transmission cycle so that it could be determined which channels are usable to send data in each cycle **[Col. 5, lines 31-39]** and transmit in micro cycles since this is the smallest unit of once cycle where communication can be carried out **[Col. 16, lines 63-67]**.

Regarding claims 22 and 23, Shioe teaches each partial cycle for real-time communication comprises micro cycles **[Col. 16, lines 63-67, communication is carried out in micro cycles]**, and Nakano teaches wherein only isochronous real-time communication is transmitted in the micro cycles **[Col. 4, lines 62-65, Iso packet are transmitted in micro cycles also shown in Fig. 4]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit in micro cycles since this is the smallest unit of once cycle where communication can be carried out **[Col. 16, lines 63-67]**.

Regarding claim 24, Huang teaches a communication system operable to isochronously transmit data between respective users during transmission cycles **[Fig. 1]**, the system comprising: a network operable to connect the users **[Fig. 1, 100]**; an application program corresponding to a first user **[Fig. 1, 140]**; a memory portion corresponding to the first user and operable to store user data to facilitate control of the first user, and output data to be transmitted over the network to a second user **[Fig. 2A, 162]**; a cycle counter corresponding to the first user and operable to count the

transmission cycles corresponding to a communication between the first user and the second user **[Col. 5, lines 34-40]**; and a processing portion corresponding to the first user and operable to determine a number of a subsequent transmission cycle **[Col. 5, lines 34-40]**, wherein the output data is transmitted from the first user to the second user during the subsequent transmission cycle which is divided into a real-time partial cycle and a non-real-time partial cycle **[Col. 2, lines 67 – Col. 1, lines 1-5]**.

However, Huang does not teach output data depends on the cycle number; wherein the cycle number determines which of the partial sequences are transmitted in the subsequent transmission cycle, wherein each partial cycle for real-time communication comprises micro cycles, and wherein only isochronous real-time communication is transmitted in the micro cycles.

Nakano teaches data output depends on the cycle number determined for the particular transmission cycle **[Col. 4, lines 60-67 – Col. 5, lines 1-6, number of channels determine partial sequences which is predetermined as described in Col. 5, lines 31-39]**, and wherein the cycle number determines which of the partial sequences are transmitted in the particular transmission cycle **[Col. 4, line 60 – Col. 5, line 6, depending on whether Iso packet is present or not the transmission sequence is determined]**, and wherein only isochronous real-time communication is transmitted in the micro cycles **[Col. 4, lines 62-65, Iso packet are transmitted in micro cycles also shown in Fig. 4]**. Shioe teaches each partial cycle for real-time communication comprises micro cycles **[Col. 16, lines 63-67, communication is carried out in micro cycles]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have data output depend on particular transmission cycle so that it could be determined which channels are usable to send data in each cycle **[Col. 5, lines 31-39]** and transmit in micro cycles since this is the smallest unit of once cycle where communication can be carried out **[Col. 16, lines 63-67]**.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrahas Patel whose telephone number is (571)270-1211. The examiner can normally be reached on Monday through Thursday 7:30 to 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2416

/Chandrahas Patel/
Examiner, Art Unit 2416